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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/577,932	05/25/2000	Shigeyuki Maruyama	000663	4823

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ARMSTRONG, WESTERMAN & HATTORI, LLP
1725 K STREET, NW.
SUITE 1000
WASHINGTON, DC 20006

[REDACTED] EXAMINER

CHU, CHRIS C

ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 10/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

CM

Office Action Summary	Application N .	Applicant(s)	
	09/577,932	MARUYAMA ET AL.	
	Examiner	Art Unit	
	Chris C. Chu	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 26 July 2002.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1 - 5, 13 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1 - 5, 13 and 14 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment filed on July 26, 2002 has been received and entered in the case.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 3, 4 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Shibata. Regarding claim 1, Shibata discloses in Figs. 1 and 7 a semiconductor device comprising:
 - a semiconductor element (1) having a plurality of electrodes (5);

- a redistribution layer (8) having a plurality of electrode pads (7a) and conductive patterns (7c) connecting the electrodes (5) of the semiconductor element to the respective electrode pads (7a);
- a plurality of metal posts (9) formed on the electrode pads of the redistribution layer, the metal posts being configured to be provided with external connection electrodes (3); and
- at least one mark member, readable on any one of posts 9, which serves as an alignment mark located in a predetermined positional relationship with the metal posts,
- wherein the mark member is made of the same material as the metal posts.

Regarding claim 3, Shibata discloses in Figs. 1 and 7 a width of the alignment mark, readable on any one of posts 9, measured along a plane parallel to a surface of the redistribution layer being greater than a height of the metal posts.

Regarding claim 4, Shibata discloses in Figs. 1 and 7 a semiconductor device comprising:

- a semiconductor element (1) having a plurality of electrodes (5);
- a redistribution layer (8) which connects the electrodes (5) of the semiconductor device to electrode pads (7a) located in predetermined positions of the redistribution layer; and
- at least one mark member, readable on any one of posts 9, which serves as an alignment mark located in a predetermined positional relationship with the electrode pads,
- wherein the mark member is made of the same material with the electrode pads.

Regarding claim 14, Shibata discloses in Figs. 1 and 7 a semiconductor device comprising:

- a semiconductor element (1) having a plurality of electrodes (5);
- a redistribution layer (8) having a plurality of electrode pads (7a) and conductive patterns (7c) connecting the electrodes of the semiconductor element to the respective electrode pads;
- a plurality of metal posts (9) formed on the electrode pads of the redistribution layer, the metal posts being configured to be provided with external connection electrodes (3); and
- at least one mark member (readable on any one of posts 9) which serves as an alignment mark located in a predetermined positional relationship with the metal posts;
- wherein the mark member is made of the same material as the metal posts; and
- wherein the mark member is located at a position different from positions of the metal posts.

4. Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Ishikawa et al. Ishikawa et al. discloses in Fig. 3 and column 5, lines 54 ~ 57 an apparatus for fixing a semiconductor wafer (26) by suction, comprising:

- a vacuum chuck table (70) having a porous plate overlaying a plurality of concentric suction grooves (78 A ~ 78D);

- a plurality of suction passages (80A ~ 80D) being connected to the plurality of concentric suction grooves, the plurality of concentric suction grooves (78A ~ 78D) being divided into a plurality of groups so that each of the plurality of suction passages is connected to one of a corresponding suction grooves belonging to one of the plurality of groups (see Fig. 3 and Fig. 4); and
- means for sequentially introducing a suctioning force into the suction passages (80A ~ 80D) at different timing.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata in view of Nara et al.

Shibata does not disclose the alignment mark having an outer configuration other than a circle. However, Nara et al. discloses in Fig. 5A an alignment mark (22a1) having an outer configuration other than a circle. Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Shibata by using the outer configuration of the alignment mark being other than a circle as taught by Nara et al. The ordinary artisan

would have been motivated to modify Shibata in the manner described above for at least the purpose of decreasing a time to detect the alignment mark (column 3, lines 4 ~ 7).

Response to Arguments

7. Applicant's arguments filed on July 26, 2002 have been fully considered but they are not persuasive.

On page 5, applicant requests "a citation of where the feature of 'at least one mark member, readable on any one of posts, which serves as an alignment mark located in a predetermined positional relationship with the electrode pads, wherein the mark member is made of same material with the electrode pads' is disclosed in Shibata is respectfully requested." Since the term "mark member" is not explicitly disclosed in the claim and any one of posts has a function as an alignment mark to connect with other structure (e.g., electrode pads on PC board, ... etc.), any one of posts is readable as a mark member.

Further, applicant argues "[I]n fact, as explained in Shibata, reference numeral 5 designates an electrode pad, not an electrode as asserted in the Office action; ... Therefore, even Shibata disagrees with the Office interpretation of this reference. Since the Office has incorrectly interpreted various individual elements, the Office assertion of the inter-relationships among these elements are also incorrect." The arguments are not persuasive since they attempt to distinguish the claims from Shibata merely through semantics. Whether one refers to element (5) as an electrode pad or an electrode, no patentable difference exists since there is no structural difference.

On page 6, applicant argues “Ishikawa discloses reference numeral 70 as a wafer transport robot, not at all a vacuum chuck table. The position taken by the Office is thus not substantiated by Ishikawa.” As explained above, the wafer transport robot (70) in Ishikawa and a vacuum chuck table perform the same function of holding and fixing a wafer. Therefore, the claimed limitation is met by the Ishikawa’s elements.

Further, applicant argues “[H]owever, they are integral parts of a pad body 76, not at all part of the chuck table 48. … Therefore, the office statement that Ishikawa et al. discloses a chuck table ‘…’ is simply unsupported by Ishikawa.” This argument is not persuasive because, as explained in the above paragraph, the wafer transport robot (70) reads on as a vacuum chuck table, therefore, a vacuum chuck table (70) has suction grooves (Fig. 3, # 78A ~ 78D), suction passages (Fig. 3, # 80A ~ 80D) and having the section passages being divided into groups, as presented in the claim 13.

Finally, applicant argues “Ishikawa et al. discloses different suction systems so as to fix wafers having different diameters. The present invention, however, features a suction system which applies a suction force to a wafer sequentially from the inner side toward the outer side, so as to positively fix a warped wafer.” The argument is not deemed persuasive because it is noted that the features upon which applicant relies (i.e., sequentially from the inner side toward the outer side) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

On page 8, applicant argues “the Nara et al. reference is related to a field completely different from the field of the present invention.” The argument is not persuasive because Nara et al. has reasonably pertinent to the particular problem with which the applicant was concerned, specifically, a shape of an alignment.

Further, contrary to applicant’s assertion and as stated in the rejection, motivation was established by Nara et al., specifically in column 3, lines 4 ~ 7 (decreasing a time to detect the alignment mark).

For the above reasons the rejection is maintained.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2815

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu
Examiner
Art Unit 2815

c.c.
October 17, 2002



EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800